

The U.S. military complex (Army, Navy, Air Force, Marines, Coast Guard, and national and state militia units) have many very remote sites in their arsenals. This fact makes PV particularly valuable for some military applications.

Several military telecommunications applications may be seen in other sections of this book as well. The applications of interest to military procurers of PV are quite diverse, particularly when size is taken into consideration. Some of the military's sites consist of a simple, small PV array tied to one battery. Others, such as the huge grid-tied array at the Yuma Proving Ground provide power for an entire building complex and more.

The functions of the military's many PV installations are diverse too, ranging from one of the most fundamental applications—water pumping—to one of the most futuristic—satellites.

Whatever the size, whatever the application, it is a fact that the Department of Defense is the largest energy consumer in the federal government, so it follows that the military complex will continue to find ways to integrate renewable energy—including photovoltaics—into their plans.



△ This 18kWp grid-connected system was installed by Ascension Technology as part of an EPA/DOE/DoD program at Ft. Dix, New Jersey for the U.S. Army. [Photo courtesy U.S. Army]

▷ A PV-powered crosswalk is in use outside the Pentagon. [Photo courtesy U. S. Army]

◁ This grid-tied installation is on Barnes Field House at Fort Huachuca, Arizona. Installed by AAA Solar, Albuquerque, New Mexico, it consists of 16 ASE Americas polycrystalline 285W modules. The dc output was inverted to 120 volts ac by a 6000W Omnion true sine wave inverter and wired back into the electrical grid in the building service entrance equipment. The system was designed to offset the peak load of the Fort and also provide the west-facing offices with much needed afternoon shade. [Photo courtesy AAA Solar]



▷ PV powers lights for a jogging trail on Charleston Air Force Base, South Carolina. According to the base energy manager, he preferred solar to conventional electrical lights in order to avoid transformers and buried cables. [Photo courtesy Solar Outdoor Lighting]





△ First Solar (formerly Solar Cells, Inc.), Toledo, Ohio, provided this 25kW de system used at the Naval Air Warfare Center, Weapons Division, China Lake, California, at a fuel cell experimentation site. NASA uses the off-grid installation for experimental purposes, indicating its interest in PV working in tandem with fuel cells. [Photo courtesy First Solar, LLC]



◁ A 1200 watt portable, unbreakable solar array such as this one provided power for the U. S. government in operation Desert Shield. The panels are by Solarex. [Photo courtesy Atlantic Solar Products]



◁ Portable solar charging units provide power even with bullet holes and partial shade. Several companies manufacture these lightweight, tough units for use not only by military units, but also for anytime remote communications or emergency power are necessary. Shown here is Uni-Solar's Uni-Pac, which uses their triple junction technology. [Photo courtesy United Solar Systems Corp.]



△ The military often uses photovoltaics to power remote facilities, such as this area lighting at a remote equipment storage facility at Fort Huachuca, Arizona. [Photo courtesy U.S. Army]

▽ Shown here is a 441kW grid-tied PV array at Yuma Proving Ground, Arizona. The panel assemblies are attached to a torque tube that rotates to track the path of the sun during the day. PV is ideal for YPG because it can generate the most electricity during peak demand and also provide back-up power for the base's water supply should there be a power outage. [Photo courtesy U.S. Army]



◁ A major defense contractor needed an instrumentation power source that would be reliable even if military base power was lost. [Photo courtesy Evergreen Solar]



◁ This U.S. Army installation at Ft. Carson, Colorado, takes advantage of photovoltaics for a water pumping project. [Photo courtesy U.S. Army]